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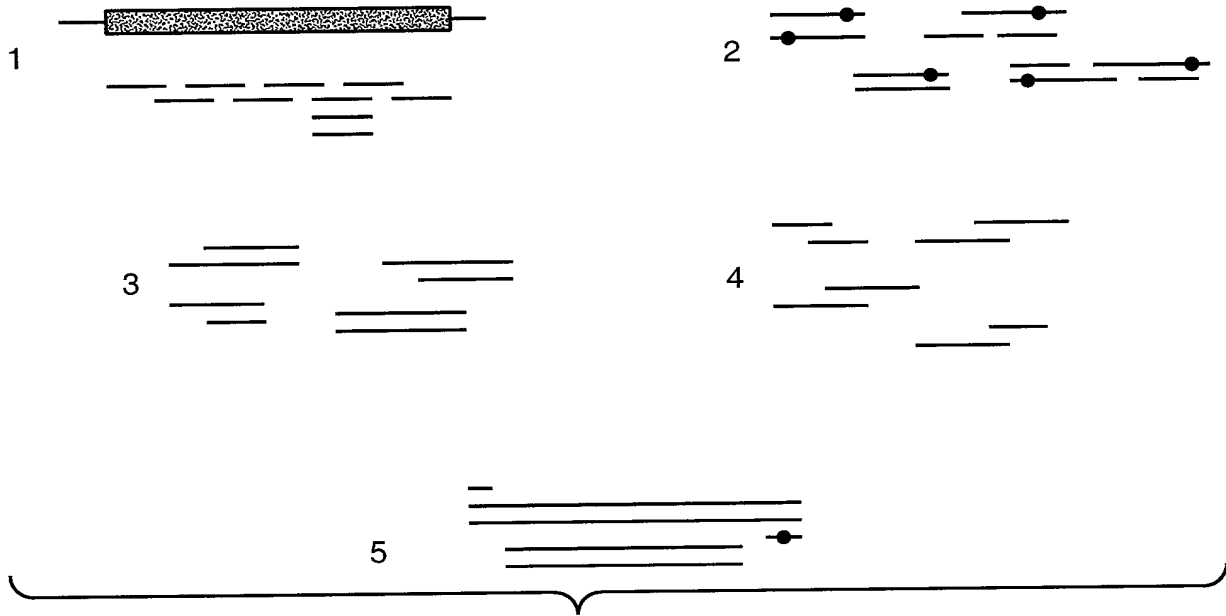


FIG._1

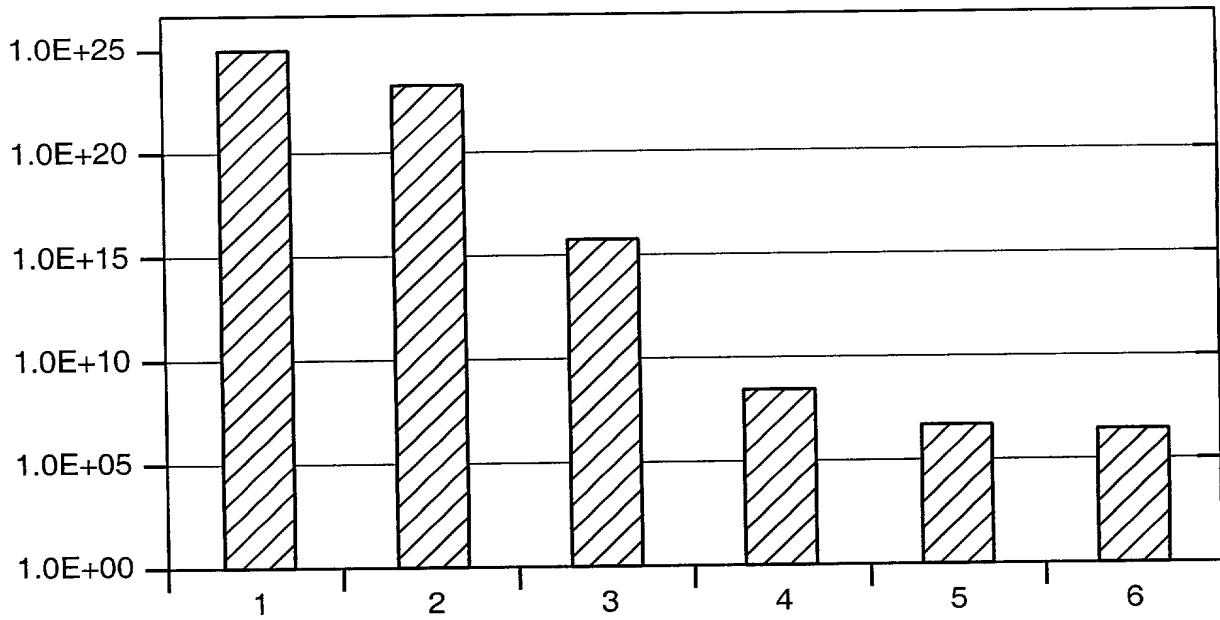


FIG._2

FOOTNOTES: 06/28/01

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FIG._3

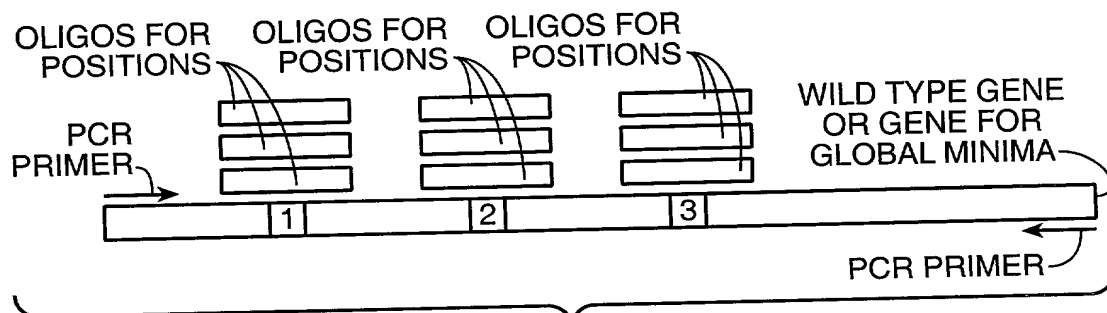


FIG._5

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FOOTED" 06/22/00

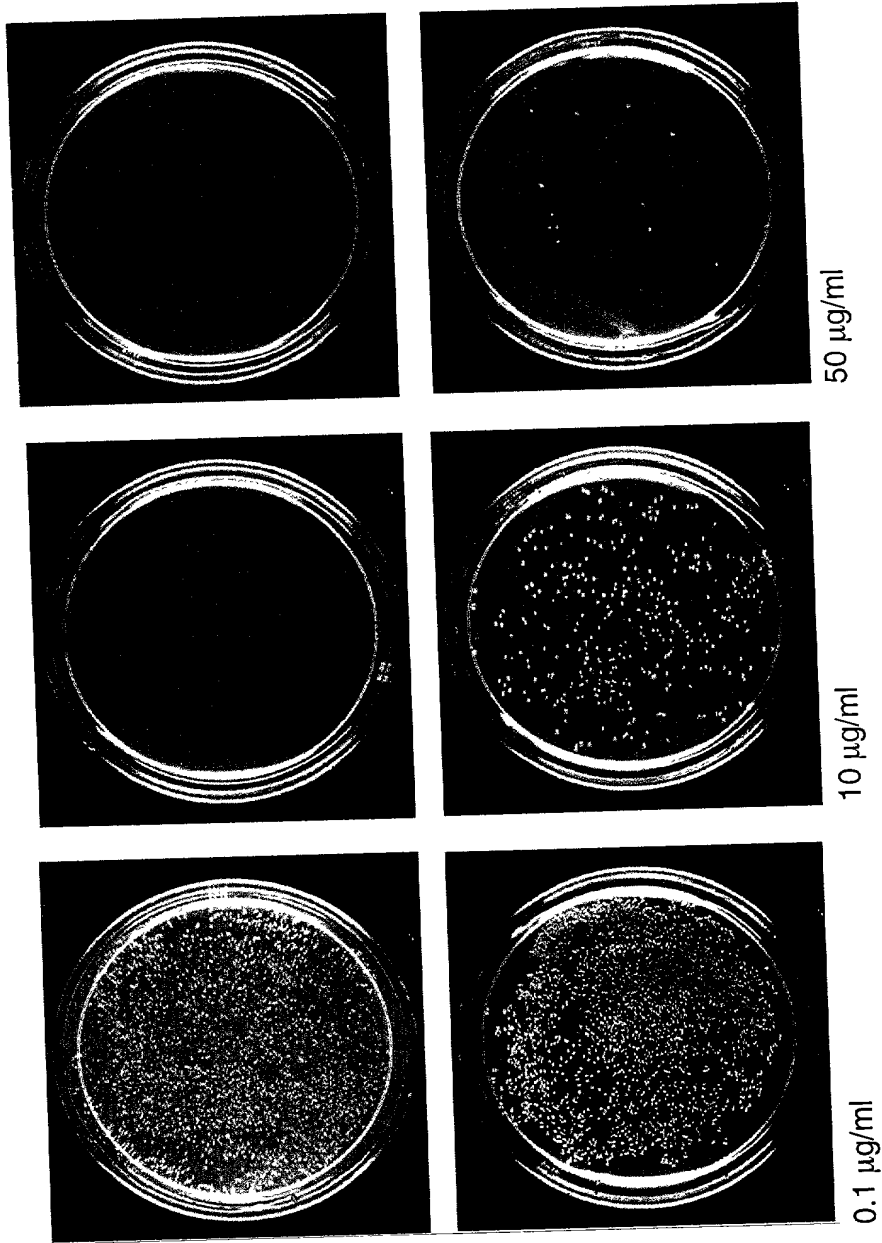
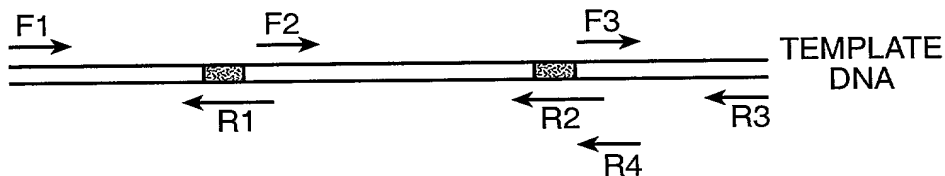


FIG.-4

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BLACK BOX =
REGION TO
BE MUTATED



STEP 1: SET UP 3 PCR REACTIONS:

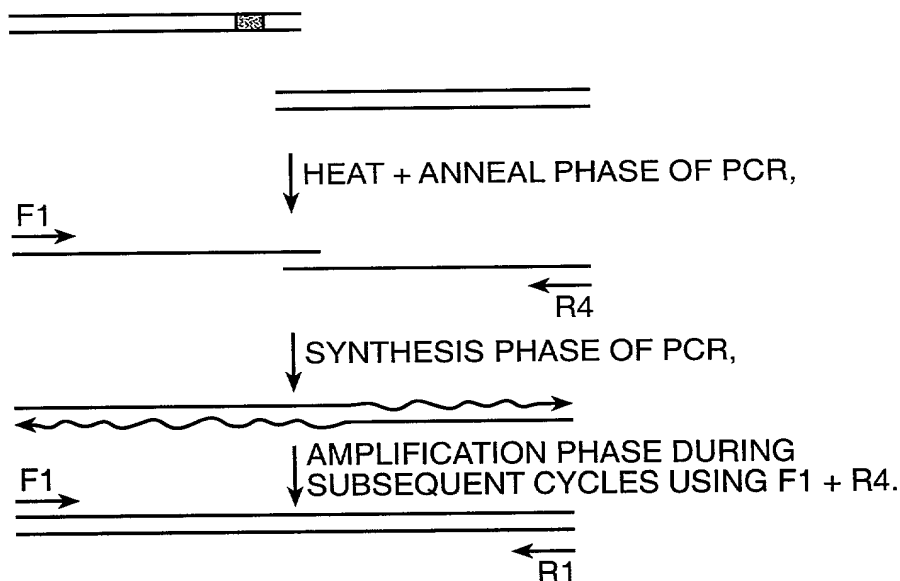
PRODUCTS:

TUBE 1:

TUBE 2:

TUBE 3:

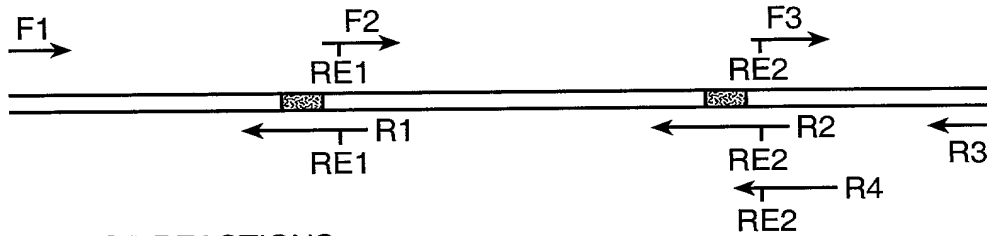
STEP 2: SET UP PCR REACTION WITH PRODUCTS OF TUBE 1 +
PRODUCTS TUBE 2 + F1 + R4.



STEP 3: REPEAT STEP 2 USING PRODUCT FROM STEP 2 + PRODUCT
FROM STEP 1, TUBE 3 + PRIMERS F1 + R3.

FIG. 6

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STEP 1: SET UP 3 PCR REACTIONS:

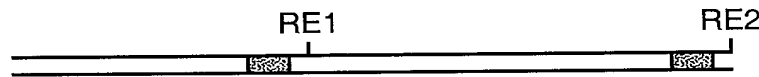
TUBE 1:

TUBE 2:

TUBE 3:

STEP 2: DIGEST PRODUCTS FROM STEP 1 WITH SUITABLE RESTRICTION ENDONUCLEASES.

STEP 3: LIGATE DIGESTED PRODUCT FROM STEP 2, TUBE 2 WITH DIGESTED PRODUCT FROM STEP 2, TUBE 1.



STEP 4: AMPLIFY VIA PCR LIGATED PRODUCTS OF STEP 3 WITH F1 + R4.



STEP 5: DIGEST AMPLIFIED PRODUCT OF STEP 4 WITH RESTRICTION ENDONUCLEASE #2.



STEP 6: LIGATE PRODUCT FROM STEP 5 WITH PRODUCT FROM STEP 2, TUBE 1.



STEP 7: AMPLIFY PRODUCT FROM STEP 6 WITH F1 + R3.

FIG. 7

DIAGRAM 3

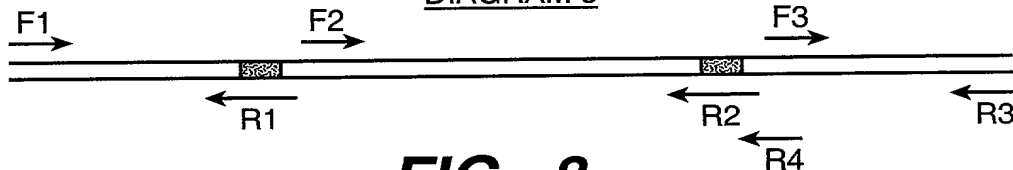


FIG. 8

Amplification Scheme Based on M13 Single Stranded Template

Amplification Scheme & Math

Amplification

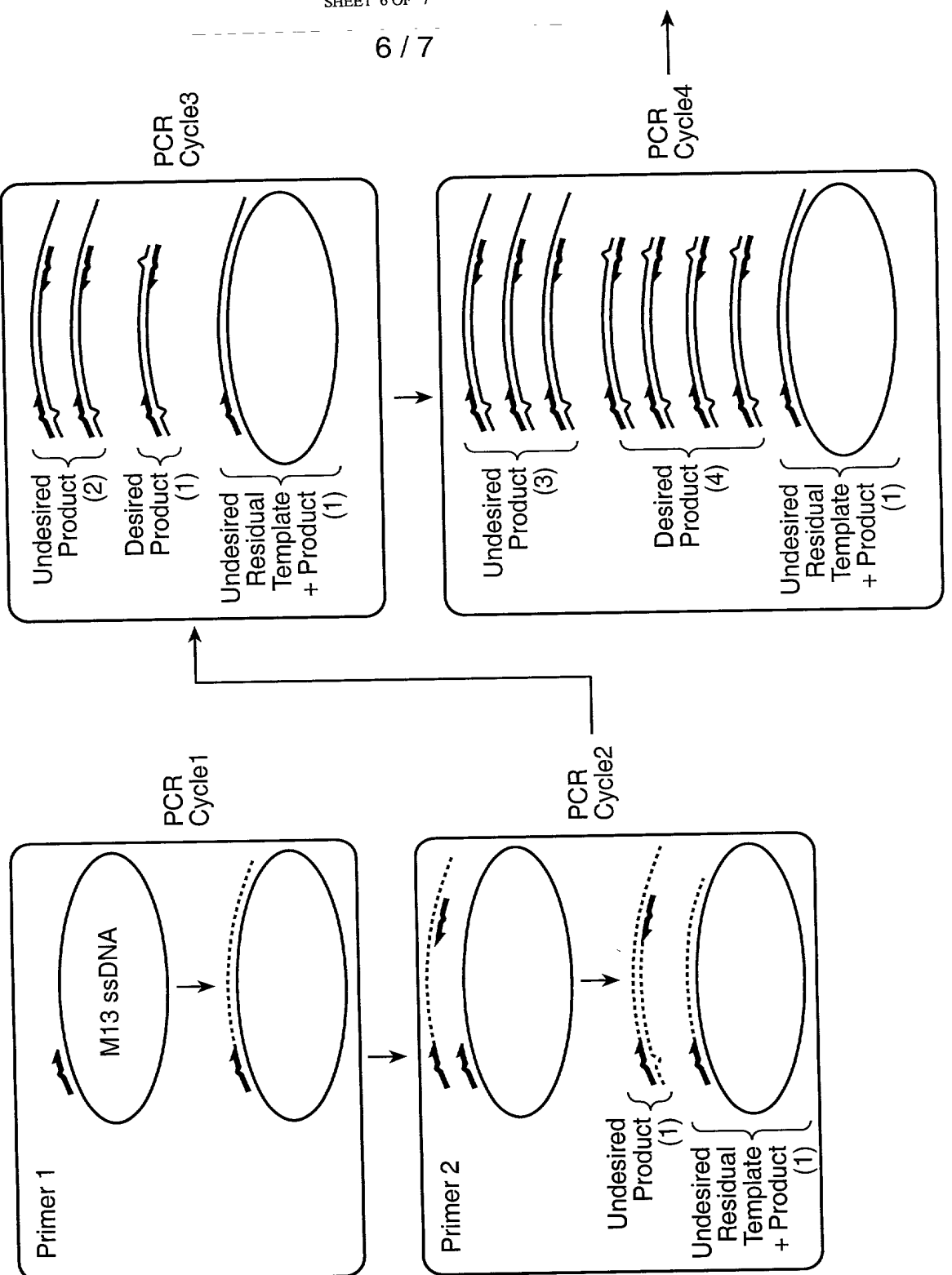


FIG. 9A

FIG.--9B

Amplification Scheme Based on M13 Single Stranded Template

Numerical Progression of Desired Product
 with Increasing PCR Cycles

PCR Cycles	Desired Product	Undesired Products and Residual Template	Percent Desired Product in Total Product
1		1	
2	0	2	0.00%
3	1	3	25.00%
4	4	4	50.00%
5	11	5	68.75%
6	26	6	81.25%
7	57	7	89.06%
8	120	8	93.75%
9	247	9	96.48%
10	502	10	98.05%
11	1013	11	98.93%
12	2036	12	99.41%
13	4083	13	99.68%
14	8178	14	99.83%
15	16369	15	99.91%
16	32752	16	99.95%
17	65519	17	99.97%
18	131054	18	99.99%
19	262125	19	99.99%
20	524268	20	100.00%

